

229



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,608	03/05/2001	Michael Benz	112740-164	1450
29177	7590	08/11/2004	EXAMINER	
BELL, BOYD & LLOYD, LLC P. O. BOX 1135 CHICAGO, IL 60690-1135			JUNTIMA, NITTAYA	
			ART UNIT	PAPER NUMBER
			2663	
DATE MAILED: 08/11/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/786,608	<b>Applicant(s)</b> BENZ ET AL.	
	<b>Examiner</b> Nittaya Juntima	<b>Art Unit</b> 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.  
4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) ,   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/5/2001</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 14, 17, 23, and 26 are objected to because of the following informalities:

- in claim 14, ll 7 and 11, "at least one of" should be deleted,

ll 8 and 12, "and" should be changed to "or" to avoid

any possible confusion,

ll 11 and 12, "the detected" should be changed to "a detected"

- in claim 17, ll 4, "a" should be changed to "the," see page 7, ll 12-18 of the specification;

- in claim 23, ll 2, "slots are" should be changed to "slot is," see claim 14, and

ll 3, "TDD" should be spelled out as "time division duplex" to avoid any misinterpretation; and

- in claim 26, ll 6 and 12-13 "at least one of" should be deleted, and

ll 7 and 13, "and" should be changed to "or" to avoid any possible confusion.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2663

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims **14-15, 17-18, 22-23, and 25** are rejected under 35 U.S.C. 102(e) as being anticipated by an art of record "UMTA/IMT-2000 Based on Wideband CDMA" by Dahlman et al. (hereafter "the art of record").

Regarding **claim 14**, the art of record teaches the following:

- allocating *a time slot* (Fig. 11) for transmitting *at least one synchronization sequence* (PSC, SSC) to *a number of base stations* (asynchronous base stations) (pg. 77, paragraph "Cell Search with Asynchronous Base Stations");
- allocating to adjacent base stations a different time offset (since each W-CDMA base station transmits a special synchronization signal and the frame timing of the target BS is determined by the SSC sequence, pg. 77, paragraph "Cell Search with Asynchronous Base Stations", therefore, it is inherent that the synchronization signal from different base stations must have different frame timing, i.e. delay, to avoid signal overlapping) with respect to a beginning of the time slot for transmitting the at least one synchronization sequence, wherein *the time offset* (frame timing) corresponds to *a choice of at least one synchronization sequence* (a chosen SSC from a set of 17 different codes) or *a sequence* (the SSC sequence out of a total of 32 possible SSC sequences) of a number of synchronization sequences (pg. 77, paragraph "Cell Search with Asynchronous Base Stations"); and
- receiving, at *a subscriber station* (MS), the synchronization sequence and performing, via the subscriber station, a time synchronization via both a time of reception of the synchronization sequence and a detected synchronization sequence designating the time offset or

Art Unit: 2663

a detected sequence of the number of synchronization sequences (since the scrambling code group and the frame timing of the target BS are determined by detecting the SSC sequence at the MS, pg. 77, paragraph "Cell Search with Asynchronous Base Stations," therefore, it is inherent that the synchronization sequence receiving step and a time synchronization performing step must be included).

Regarding **claim 15**, the art of record teaches transmitting *two synchronization sequences* (PSC and SSC) in *one time slot* (one slot of 0.625 ms) (Fig. 11 and pg. 77, paragraph "Cell Search with Asynchronous Base Stations").

Regarding **claims 17 and 18**, the art of record teaches that *further information* relates to a *frame synchronization* used by the base station (frame timing of the target BS during cell search, pg. 77, paragraph "Cell Search with Asynchronous Base Stations").

Regarding **claim 22**, the art of record teaches that the synchronization sequences are *unmodulated orthogonal gold codes* (PSC and SSC are unmodulated orthogonal Gold codes of length 256 chips, pg. 77, paragraph "Cell Search with Asynchronous Base Stations").

Regarding **claim 23**, the art of record teaches that the time slot is a part of a TDD transmission arrangement with broadband channels, a number of time slots per frame being used for the synchronization (pg. 77, paragraph "Cell Search with Asynchronous Base Stations" and pg. 79, paragraph "The key features of the UMTS W-CDMA"...."The TDD mode").

Regarding **claim 25**, it is inherent that since the PSC and the SSC are transmitted during the same 256-chip of each frame having 40,960 chips and 16 slots or 2560 chips/slot, Figs. 4 and 11, pg. 75, paragraph 1 left-hand column, "The downlink...of length 40,960 chips....each consisting of 16 codes", and pg. 77, paragraph "Cell Search with Asynchronous Base Stations,"

Art Unit: 2663

therefore, they must be transmitted at lower power, i.e. half the power, compared with other transmissions of the base station.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 19-21, 24, and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over an art of record "UMTA/IMT-2000 Based on Wideband CDMA" by Dahlman et al. (hereafter "the art of record").

Regarding **claims 19-21 and 24**, the art of record fails to teach that the further information relates to a control channel and the coding of the further information as recited in the claims.

However, the art of record teaches that the PSC is transmitted time-aligned with BCCH slot boundary and SSC is also transmitted in each time slot along with PSC, see Fig. 11 and pg. 77, paragraph "Cell Search with Asynchronous Base Stations."

Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to modify the teaching of the art of record to provide further information relates to a control channel and the coding of the further information by using the choice of synchronization sequences or the sequence of synchronization sequences as recited in the claims. The suggestion/motivation to do so would have been to take advantage of the SSC sequence by

Art Unit: 2663

transmitting further information without additional bandwidth and thereby reducing frequency consumption.

**Claim 26** is a radio communication system corresponding to method claim 14, and is therefore rejected under the same reason set forth in the rejection of claim 14 with the addition that the art of record fails to teach a controller and a synchronization part. However, it would have been obvious to one skilled in the art to include the controller and the synchronization part to automatically provide the functions as recited in claim and the corresponding method claim 14.

6. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over an art of record “UMTA/IMT-2000 Based on Wideband CDMA” by Dahlman et al. (hereafter “the art of record”) in view of Dahlman et al. (USPN 5,991,330).

Regarding **claim 16**, the art of record fails to explicitly teach predetermining a time gap between the two synchronization sequences in the one time slot.

However, as shown in Fig. 3, Dahlman et al. teach predetermining *a time gap* ( $t_2 - N_p$ ) between *the two synchronization sequences* (the pilot code and the framing synchronization code) in the one time slot (a synchronization slot, e.g.  $S_0$ ) (predetermining a time gap must be inherent included, col. 2, ll 53-56 and col. 4, ll 40-67).

Given the teaching of Dahlman et al., it would have been obvious to one skilled in the art to modify the teaching of the art of record to include predetermining a time gap between the two synchronization sequences in the one time slot. The suggestion/motivation to do so would have been to provide the frame synchronization as taught by Dahlman et al. (col. 3, ll 60-col. 4, ll 1-2).

Art Unit: 2663

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 703-306-4821. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima  
August 6, 2004

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*Chau T. Nguyen*

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